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ON

DELIRIUM TREMENS.

BY

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In the Journal for February, 1870, Professor Cuming, of Queen's College, Belfast, called attention to the important practical question whether in cases of habitual drunkenness, and in commencing delirium tremens, it was the more advisable to forbid the use of intoxicating drinks altogether or to diminish gradually the amount taken. His general views and conclusions are stated in an opening sentence as follows:—"The great majority of recent writers regard delirium tremens as a specific form of poisoning. Its occurrence at a particular time is attributed to the fact that the poison has then accumulated in the system to the amount necessary for the production of the disease. According to this, which may be called the toxemic theory, delirium tremens is regarded as the cumulative effect of alcohol taken habitually for a considerable period of time, just as intoxication is the effect of a considerable quantity of alcohol taken within a short time. This view, with only unimportant modifications, is held, amongst others, by Drs. Peddie, Laycock, Gairdner, Hughes Bennett, Aitken, Wilks, and Anstie, all of whom reject the notion that the withdrawal of alcohol has anything to do with the production of the disease; and although various authors have urged opinions adverse to this view, it must be admitted that their efforts have met with little success.

"Having had many opportunities of studying the disease, both in hospital and in private practice, I have become convinced that this theory is inconsistent with observation, and that there exists, in a large number of cases, so distinct a connexion between the withdrawal of alcohol and the supervention of delirium, that I have been irresistibly led to the conclusion that these two occurrences stand to each other in the relation of cause and effect. As it is by our notions of the pathology of the disease that our treatment must be ultimately regulated, I venture to offer the following remarks, which will be found to possess a direct bearing on this subject, and which may, I hope, lead to a reconsideration of it."

Upon reading the paper I felt that Dr. Cuming might justly expect the reconsideration he invites.

With a view, however, to greater precision in discussing the

questions involved, I must state that I wholly repudiate the toxemic theory which Dr. Cuming attributes to me, amongst others. I have already done this in a correspondence I had with Dr. George Johnson, in the *Lancet*, for June, 1866. According to my view alcohol is only one of several noxious ingredients in intoxicating drinks; the whole class of bitters taken habitually and in large quantities are, in my judgment, as injurious to the brain as alcohol. I hold, therefore, that to speak of alcohol as the sole or even in many cases the chief injurious agent is unscientific and an error. The baleful influence of the "sirop d'absinthe" owes something of its peculiar noxiousness to the bitter it contains. Nor do I at all hold that delirium tremens is a cumulative effect of either alcoholic or other intoxicants, in the same sense as intoxication is the effect of a sufficient quantity taken in a short time. The connexion is certainly much more complex than here stated, for comparatively very few habitual drunkards have attacks of delirium tremens.

After re-consideration, then, and further careful observation, I adhere to the conclusion—not as stated absolutely by Dr. Cuming, but as in accordance with fact—that the withdrawal of alcohol, or, more accurately, of the usual stimulants, has comparatively little influence as a cause of delirium tremens; not so much influence as the want of food.

In the Royal Infirmary of Edinburgh there are two wards commonly called the "D. T. Wards," into which all kinds of urgent brain-cases are received; they are in charge of the clinical and ordinary physicians in quarterly rotation. During the two last summers of 1870, and 1871, they have been under my charge, and I have watched all the methystic cases admitted, numbering about 60, with a special consideration of Dr. Cuming's views, but with the result already stated; indeed so entirely in opposition to them, I may add, that I must trespass a little upon your space by re-capitulating the results of Dr. Cuming's observations, before stating my own.

After describing the career of an habitual drunkard, and how it may be checked in three ways—viz.: by restraint at home, or at an hospital; or his stomach may reject the drink—Dr. C. observes "that very frequently men of magnificent organization, when stopped in one or other of these ways, get well after a few days of horrible discomfort, without passing through anything approaching to delirium; but in others a stage of twelve hours or so intervenes, in

which the patient will take nourishment, although unwillingly; will even sleep a little; and by this the physician is often led into the fallacious expectation that his patient is to escape an attack." Dr. C. proceeds to add:—"However, at a period varying from thirty six to sixty hours, and, probably, in the majority of instances, unde forty-eight hours, he begins to hear noises, or to see some imaginary object, and in a short time the attack becomes developed. Now I am aware that many excellent observers, among whom I may specially notice Dr. Peddie, of Edinburgh, who has contributed an excellent paper on this disease, state that delirium tremens usually comes on while the patient continues to drink. I am able to state, as the result of a not inconsiderable, although, of course, limited experience, that in no single instance in which I had an opportunity of personally observing the patient, did this occur. My experience may be exceptional, but it is positive on this point. Nay, more, I have witnessed the supervention of the attack at a period so uniform and regular, dating from the discontinuance of the alcohol, that I have been inevitably led to the conclusion, a conclusion quite opposed to what I was prepared to expect, that there exists a relation of cause and effect between these two occurrences. Given an individual who has once had delirium tremens; given, also, a certain period of indulgence, the length of which will, of course, vary greatly with the individual, and with the amount of alcohol, we may predict the supervention of delirium tremens within two days from the time when he ceases to drink with fully as much precision as we can foretel the period of maturation in a case of variola, or the crisis in a case of typhus fever.

"I do not say that a continuance of his indulgence will indefinitely protect a patient, nor do I say that to encourage such a continuance is at all permissible, but I do say that it is quite within the power of the physician to determine the period when the attack shall supervene by depriving the patient of his drink."

"It is necessary to observe that the discontinuance of the alcohol may be either absolute or relative. I have several times witnessed the effects of complete abstinence. I have reason to believe that similar results follow from relative abstinence. For instance, I do not think that with respect to a man who had been drinking twenty glasses of whiskey daily for a fortnight it would make any practical difference as regards the supervention of delirium tremens if he were allowed one or two glasses of whiskey in divided doses during the twenty-four hours."

Dr. Cuming intensifies and qualifies his conclusions as follows:—"I have myself seen no one case in which delirium tremens set in, in which the patient was alcoholized, and several medical friends of large experience in the disease have confirmed my observation on this point by their own.

"I would by no means be understood to assert that delirium tremens may not come on while the man continues to drink. I merely state that I have not myself witnessed any such case. Several are recorded by observers of such eminence that I cannot hesitate to accept this as a form in which the disease may manifest itself. It is remarkable, however, that the experience of some observers should be so completely opposed to mine, Dr. Laycock, for example, having found that in twenty-one out of twenty-two cases the patient was alcoholized on admission into hospital."

Dr. Cuming thinks the discrepancies between the results of his observations and those of numerous observers besides myself can be explained by assuming the imperfection of their inquiries as compared with his own. He remarks:—"I am anxious not to be understood as throwing any doubt on the published cases which point in a different direction from mine, but I may be allowed to say that the evidence in many of them is very incomplete, and that hospital physicians who rarely see cases of this kind before the delirium has set in, are necessarily obliged to depend for the histories of their cases on those who accompany the patient, and that consequently these histories lose the most important guarantee of their accuracy—namely, the direct personal observation of those who record them. The friends of a patient naturally attach greater importance to the weeks during which he has continued to drink than to the few days during which he has drunk little." Upon this point I must seriously differ from Dr. Cuming. In the cases I have observed great care was always taken to ascertain the facts, and with sufficient success; whilst in the instances of drunkards received into prisons and other places of detention, where total abstinence is enforced at once, the evidence must be held to be, at least, as unquestionable as his own.

I have before me an abstract of twenty-four of the methystic cases received into the Royal Infirmary, to be under my care, during the past summer, made by my clinical resident physician, Mr. Alexander Macdougal, M.B.[a] They can be classed under

[a] Since these lines were sent to press, I have to lament the premature death of my young friend, from diphtheria, caught in the Infirmary, while in charge of surgical wards.

three heads, viz. : as being drunk on admission ; as in the "horrors," or first stage of the delirium; and as in actual delirium tremens. In every one of these 24 cases there was a withdrawal of alcoholic stimulants, in the presence of my clinical class, to the extent which Dr. Cuming has found to induce the disease; but none of the drunken cases became horrored or delirious; none of those with "the horrors" advanced to the next stage; and all in the delirious condition rapidly recovered.

I subjoin only one illustrative case of each class, as it would be too great a demand on your valuable space to give the whole abstract:—

Case I.—"*Ebrietas.*"—Catherine R., aged thirty-two, has been twice in the ward before. Brought in drunk; had been drinking for seven days, and eating very little; after a drunken sleep complained of frontal headache, and had tremors of tongue and extremities; slight cough, no expectoration, no physical signs; Pulse 84, soft. Tongue furred; no appetite; thirst; slight pain on pressure in epigastrium; vomited food once; bowels costive.

Treatment.—Milk and beef-tea; then steak diet. Recovery in six days.

Here is the case of an habitual drunkard of the worst kind, who has already been twice under treatment before, yet is made sober without a bad symptom, without any stimulant whatever.

Case II.—"*Horrors.*"—James T., aged thirty-six, an auctioneer. Habitual drunkard. Treated in the ward once before. Has been drinking whiskey for three weeks. Has taken little food, and for the last three days has vomited everything. Slept for an hour or two when "dead" drunk, but not otherwise. Dreams of falling over precipices; headache at vertex, where also he has a feeling of compression; sleepless; tremor of tongue and limbs; no illusion of sight or of hearing; quite coherent. Slight morning cough; reduplication of first cardiac sound; pulse 72, of good strength; tongue moist; slight white fur on dorsum; no appetite; great thirst.

Treatment.—Milk and beef-tea, which were retained from the first; afterwards steak diet; to have m. xv. of aqua pura at bed-time as a *placebo;* also a basin of warm beef-tea with a glass of sherry in it. Slept well. Recovery in three days.

In this case it is probable that the whiskey taken previously to

admission was vomited. He was not at all of a "magnificent organization," but quite the contrary; had no stimulants curatively after admission, yet he quickly recovered from the stage of "horrors."

Case III.—"*Delirium tremens.*"—William W., aged twenty-seven. Had not been in the ward before. Has been drinking whiskey for 15 days, up to admission; during last four days has taken hardly any food, and has had no sleep. On admission is talking incoherently, and very restless, getting out of bed every minute, till he was tied in bed, when he continued throwing his limbs about as much as possible for ten hours. He then slept. On awakening, had headache, tremor, and great exhaustion, with entire loss of appetite; vomiting and thirst; bowels costive.

Treatment.—Head shaved and ice-cold cloths applied; milk and beef-tea, with six ounces of sherry; in 24 hours afterwards he took ʒij. of infusion of digitalis and ʒvj. infusion of quassia thrice daily. Recovery in eleven days.

In a similar case of a blacksmith, aged thirty-five, who had been drinking for several weeks, and was brought to the ward, by the police, in such an excited state that it required five men to hold him, immediate calm followed upon the hypodermic injection of m. xxx. of a solution of bimeconate of morphia, of gr. ix. to f. ʒi.

These are examples of numerous similar results of treatment of drunkenness and its consequences, witnessed in not fewer than 200 cases, in which the withdrawal of alcoholic and other intoxicating drinks was insisted on. They not only point in a different direction to Dr. Cuming's doctrine, but are actually antagonistic as facts of experience, independently of all theory. Dr. Cuming will notice, doubtless, that in one of the cases ʒvj. of sherry per diem was allowed, but I may say that this belonged to a class of quite exceptional cases, so that it is not a strictly accurate statement of my plan to say, as Dr. Cuming affirms:—"The instinct of most practical men has led them, in spite of theoretical considerations, to the adoption of a line of treatment of which a moderate amount of alcohol forms a part—an instance not uncommon in medicine, of our practice being in advance of our theory. Dr. Laycock, for example, would allow a moderate amount of wine—a rule quite judicious, although hardly reconcilable with his theory of the disease."

I venture to add that Dr. Cuming's dialectical hit as to my theory being hardly reconcilable with my practice, is more ingenious than ingenuous. I have already repudiated the toxemic theory, but I must add that so small an amount of wine or brandy as I prescribe could not, according to Dr. Cuming's experience, have any sensible effect. Relative abstinence, he affirms, is as potent to induce the delirium as absolute abstinence.

According to my experience, there are special conditions of the heart and nervous system, in cases of delirium tremens, like those in other diseases which indicate alcoholic drinks medicinally. I subjoin, in illustration of this important point, an extract and a case from my "*Practical Notes*," published in the *Edinburgh Medical Journal* for November, 1862:—

"*Alcoholic Stimulants.*—These are available in all asthenic forms of delirium, however caused. They have been hitherto administered in the methystic form, chiefly on the theory that the sudden withholding of the habitual stimulant is the exciting cause of the delirium. The depression of the nervous system may be partly due to the want of the accustomed stimulus; but all experience shows that it is still more commonly due to morbid causes of a more general character, such as induce a feverish cold, a fit of indigestion, of the gout, or the like. Without such concauses, abstinence from habitual stimulants will not excite delirium tremens. The habitual drunkard distinguishes the depression which commonly succeeds to stimulation as 'the blues;' 'the horrors' is a different thing, and occurs when any indisposition induces loss of appetite, languor, disturbed sleep, and other symptoms of the class. It is the depression thus induced by this same morbific cause which constitutes the first stage or simplest form of delirium tremens. The intensity, therefore, is partly, at least, determined by the kind of indisposition or acute affection; and it is this we have to remedy. The indications, therefore, for the administration of alcoholic or habitual stimulants must be drawn from the then condition of the patient, just as in other diseases in which remedies of this class are useful. When food has not been taken for several days, and the hallucinations are of a frightful or distressing kind, and especially when the pulse is very quick and feeble, the first sound of the heart heard indistinctly, the tongue coated, œdematous, and flat, or indented at the edges, wine and brandy may be administered medicinally with advantage. Sometimes this state of prostration is due to the combined influence

of drinks and opium or its salts, or to opium alone. In either case, alcoholic stimuli may be given. The following is an example:—

Delirium Tremens and Poisoning with Laudanum and Brandy. Delirium Suicidal. Tremors excessive: Fourth or fifth Attack. Duration about Eleven Days.

J. S., a broker, aged 52, admitted into the Royal Infirmary on 29th May, 1862. It is his fourth or fifth attack of delirium tremens. He was intoxicated and under the influence of opium when admitted, his friends having given him brandy and laudanum that he might be quietly conveyed to the Infirmary. Has been drinking brandy, porter, and ale for the last ten days, but no whiskey, as he had made a promise to that effect when in the Infirmary on a previous occasion. Sometimes he does not take drink for two years. His appetite is generally bad, and his bowels constipated; complexion dingy; countenance very anxious. Intoxication having passed off, he feels extreme remorse for his conduct. Nights wholly sleepless. His tremors are so violent as to shake the bed. Complains of a dull aching pain in the head and ringing in the ears. Tongue flat and moist, but coated; pupils contracted; conjunctivæ icteric; has hallucinations when he shuts his eyes, of bears, and dogs, and animals he cannot describe, which walk around his bed as if to attack him; also giants, who make faces at him and tease him.

Treatment.—A purgative enema; strong beef-tea, with or without small quantities of brandy, according to the state of pulse. On 2nd June ordered nitrate of silver and muriate of morphia, as the stomach was exceedingly irritable. In the evening the pulse was 130 and weak, and prostration great. Ordered from four to six ounces of brandy, to be taken in small doses over twenty-four hours, either in water or strong beef-tea, as the stomach will bear.

Progress of the Case.—Little or no sleep for several days; the mental affection more and more developed. 31st May —Fancied he saw the devil and a large black dog in the water-closet, and a sow in the ward, and that vermin were crawling over him. 1st June.—Same hallucinations; but also sees a number of people in the ward mocking him. 2nd June.—Tried, when in the water-closet, to commit suicide by strangulation, thinking he heard his wife say, "Go and hang thyself." Believes he has attended his own funeral, and called out to imaginary persons at the window that they would find his body at the Infirmary. Complains that cockroaches and flies are going in and out of his ears. 3rd June.—Last night

endeavoured to throw himself out of bed. Fancies the lower end of the bed rises so that he rests on his head (vertigo), and to obviate the result, he advances his body forward. Affirms that his hands are charged with electric fluid, which dissolves anything put into them, and had in fact dissolved an old gentleman's watch; that children are attached to the top of the room, and that if he moves his eyes from them they will fall. Hears brass bands playing very beautiful music. 4th June.—Is constantly talking in a low tone about his business. Tremulousness still very great, and nights sleepless; often attempts to get out of bed. During the last three days has had four ounces of brandy in the twenty-four hours, in small and frequent doses, and beef-tea freely.

5th June.—Slept for eight hours during the day, and the whole of the following night. 6th June.—Free from all hallucinations. 9th June.—Quite well, and dismissed cured. Duration of treatment to sleep coming on, nine days.

This case is an example of the most severe and troublesome type of the delirium, and would, I think, have terminated fatally under the old method of laudanum and whiskey.

In truth, Dr. Cuming propounds a theory which includes several others, but which I need not discuss, since they all turn upon the time-honoured dogma—that, to cure a drunkard of his discomforts and his horrors when the drink is out of him, you must administer "a hair of the dog that has bitten him," and let him down gently. Now I do not deny the propriety of relieving the miseries of the drunkard; but I think that may be done by other drugs than "alcohol," and even without drugs at all. The good results of this method have been signally manifested in the Edinburgh Royal Infirmary. Formerly, the old procedure of giving stimulants with or without opium, was the regular routine. I have the best evidence—that of eye-witnesses—that this was followed in the "D. T. Wards" during the three years from the 1st October, 1845, to 30th September, 1848, when amongst 144 admissions there were 51 deaths, or at the rate of 35 per cent.; while, during a period of eleven years, ending 30th September, 1850, there were 481 admissions and 125 deaths, or 26·0 per cent. In October, 1858, I published, in the *Edinburgh Medical Journal*, my first paper, "*Clinical Illustrations of the Pathology and Treatment of Delirium Tremens;*" the withdrawal method then came into general practice, and with the following results, as kindly abstracted for me, by Mr. Macdougall, the treasurer:—

CASES *returned as "Delirium Tremens," in the Royal Infirmary, Edinburgh, for Ten Years*, 1859 to 1869.

Year	No. of Cases	Died	Per Cent. of Deaths
1859–60	74	1	1·37
1860–61	54	2	3·6
1861–62	58	1	1·72
1862–63	69	3	4·35
1863–64	69	1	1·45
1864–65	73	7	9·6
1865–66	92	2	2·17
1866–67	86	5	5·81
1867–68	49	4	8·36
1868–69	44	–	0·0
TOTAL	668	26	3·89

Two of these years—1864–65 and 1867–68—present, for Edinburgh, an exceptionally high mortality; but low, when compared with the previous mortality and with other statistical returns. In St. George's Hospital, London, during the years 1850–55 the mortality was 14·6 per cent. In his report of the health of the army in 1853, Colonel Pollock returns the mortality from *delirium tremens* at 17·6 per cent. for the infantry, and 13·0 per cent. for the cavalry. The treatment was probably on the theory which Dr. Cuming advocates, and at one time so generally acted on, viz., that the disorder of the brain is commonly induced by the withdrawal, and may, therefore, be prevented or cured by the administration of intoxicating drinks.

T. LAYCOCK.